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Integrating Development in Climate Change

A Framework Policy Discussion Paper on Key Elements for the Development of the Post-2012 Global Climate Policy Regime

SOUTH CENTRE

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ABOUT THIS SPECIAL POLICY DISCUSSION PAPER

The South Centre regularly produces policy papers, studies, and analyses on key issues facing developing countries in multilateral discussions and negotiations and on which they need to develop appropriate joint policy responses. This Special Policy Discussion Paper is a special publication intended to provide readers, especially developing country policymakers and negotiators on development and climate change issues, with a policy paper that provides an integrated development-oriented approach to climate change issues with recommendations on the mandate and principles that should be reflected in any post-2012 global policy regime on climate change.

It is hoped that this publication will assist developing country governments in formulating policies and positions which would further their development objectives in the context of the climate change negotiations.

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Table of Contents

Acronyms 5

I. Introduction: The Need for Urgent Global Action on Development and Climate Change 6

II. General Principles for a Development Agenda in Climate Change 8

III. Broad Objectives for the Post-2012 Global Climate Policy Framework Process 9

IV. Mitigation 10
- Increasing environmental space for development through global GHG emissions reduction targets 11
- Mitigation cooperation 12

V. Adaptation 13
- Ensuring that trade, finance, and other economic policies provide development policy space 14
- Environmental and natural resource management 14
  - Avoided deforestation and land-use conversion 15
- Energy use, access and security 15
- Science-based monitoring, research and evaluation of adaptation policies 16

VI. Technology Transfer 17
- Climate-friendly technologies 17
  - Technologies needed for observation and monitoring of climate change 17
  - Technologies needed for mitigation of climate change 18
  - Technologies needed for adaptation to climate change 18
- Special innovation and knowledge access regimes for climate-friendly technologies 18
- Sectoral approaches to technology transfers and corollary financing and investment 18
- Cooperation in climate-related science 19

VII. Financing, Incentives and Adaptation Cooperation 20
- Carbon market mechanisms and private sector involvement 20
- Technical assistance and capacity-building (TACB) 21
- Compensatory adaptation financing 21
- Sectoral funding mechanisms 22

VIII. Cooperation on Climate Disaster Preparedness, Response and Rehabilitation 23
- Disaster preparedness 23
- Humanitarian assistance 23
- Climate Disaster Preparedness, Emergency Response, and Rehabilitation Fund 23

IX. Institutional and Policy Coherence, Cooperation, and Governance 23
Primacy of the United Nations process 24

Institutional and policy coherence and coordination for mitigation, adaptation, and development 24
- Strengthening mitigation under other international agreements 25
- Ocean management and protection 25
- Wetlands management and protection 25
Developed country responsibility and commitment 25
Involvement of civil society 26
Supporting developing country participation and South-South cooperation 26

Annex 1: Designing the Bali Mandate and Roadmap for the Post-2012 Global Policy Regime on Climate Change 27
Recommendations on structure and process 27
Chapeau 27
Declaration of Principles 27
General Objectives 28
Guidelines Governing the Negotiations 28
Subjects for Negotiation 28
Process and Organization of the Negotiations 29

ACRONYMS

CBD – Convention on Biological Diversity
CDM – Clean Development Mechanism (of the UNFCCC Kyoto Protocol)
CFC - Chlorofluorocarbon
CO2e – Carbon dioxide equivalent
COP – Conference of the Parties (of the UNFCCC)
GHG – Greenhouse gas
HCFC – Hydrochlorofluorocarbon
HFC – Hydrofluorocarbon
IMF – International Monetary Fund
IPCC – Intergovernmental Panel on Climate Change
ITTA – International Tropical Timber Agreement
MEA – Multilateral environmental agreement
MOP – Meeting of the Parties (of the UNFCCC Kyoto Protocol)
UNCLOS – United Nations Convention on the Law of the Sea
UNCTAD – United Nations Conference on Trade and Development
UNDP – United Nations Development Programme
UNEP – United Nations Environment Programme
UNFCCC – United Nations Framework Convention on Climate Change
WMO – World Meteorological Organization
WTO – World Trade Organization

Linking Development and Climate Change Responses

Climate change is first and foremost a development challenge. This challenge can only be met through global cooperation to reduce developed countries' climate footprint and support developing countries' adoption and implementation of low-carbon sustainable development pathways that are appropriate to their development circumstances. Global response in the post-2012 climate regime must not lead to a foreclosure of both the environmental space and the development policy space available to developing countries.

I. Introduction: The Need for Urgent Global Action on Development and Climate Change

Human-induced climate change is now well recognized as a physical and global reality. Global warming associated with climate change has begun to affect global weather patterns, sea levels, snow cover, ice sheets and rainfall. Regional climate patterns shifts are already affecting watersheds and ecosystems all over the world. The human and financial costs to countries of coping with extreme weather events, crop failures and other emergencies related to climate are growing higher. Developing countries, especially Least Developed Countries (LDCs) and Small Island Developing States (SIDS), who are already facing difficulties in alleviating poverty as a result of their economic situation, are especially vulnerable to the adverse effects of climate change.

Unless current rates of greenhouse gas (GHG) emissions are drastically cut and reversed, global average temperatures will rise by at least 2C by 2050, according to the Intergovernmental Panel on Climate Change (IPCC). This will result in, among others, the creation of hundreds of millions of environmental refugees mostly from developing countries, acute water shortages of large proportions of the global population (again mostly in developing countries), food shortages as agricultural production goes down all over the world, sea level rise of at least 1 meter[1], and the extinction of a third of the world's species. Even before that, the expected 1C rise by 2020 and the 1.3C rise by 2025 will already have devastating impacts on the lives and livelihood of people, especially the poor and especially in developing countries.

[1] According to the World Bank, "the impact of sea level rise from global warming could be catastrophic for many developing countries – the World Bank estimates that even a one meter rise would turn at least 56 million people in the developing world into environmental refugees." See World Bank, The Impact of Sea Level Rise on Developing Countries: A Comparative Analysis (WPS4136, February 2007), at http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:21215328~pagePK:64165401~piPK:64165026~theSitePK:469382,00.html.

As climate can be considered as a global common and resource, addressing climate change requires global cooperative action within a comprehensive and integrated policy framework. Such framework must include measures to mitigate GHG emissions and to help the most vulnerable adapt to the adverse effects of climate change – these would require sound scientific basis that includes monitoring, research and assessment. The world's first attempt at setting in place a global policy framework for international cooperative action on climate change came in 1992 at the Rio Summit when the UN Framework Convention on Climate Change (UNFCCC) was opened for signature. With 188 States Parties and the European Community, the UNFCCC is one of the multilateral environmental agreements (MEAs) with the most universal membership.

Aware that the UNFCCC's provisions may not in themselves be sufficient to tackle climate change, UNFCCC Parties in the mid-1990s set out to establish firmer and more detailed commitments for developed countries in terms of binding greenhouse gas (GHG) emissions reduction, resulting in 1997 in the adoption of the Kyoto Protocol at the 3rd Conference of the UNFCCC Parties in Kyoto, Japan. It sets out basic rules for binding GHG emissions reductions for developed countries and has provisions intended to assist developing countries in voluntarily reducing their own GHG emissions. The Kyoto Protocol entered into force on 16 February 2005.

The existence and the level of implementation of the UNFCCC and the Kyoto Protocol point to the need for a comprehensive and integrated global policy framework for dealing with climate change, its causes and its effects, especially on developing countries. At the Potsdam Environmental Ministerial Meeting in March 2007, views were expressed that an integrated strategy on climate protection, sustainable development and economic growth, both for industrialized and developing countries should be further explored, thereby creating new opportunities for innovation and development. Developed countries would continue to bear a bigger share of the responsibility to address climate change, leading to greater efforts to reduce emissions in a sustainable manner. These would lay the foundation for increased initiatives by developing countries to shift to low carbon and sustainable development pathways.

In 2005, the COP/MOP 1 of the Kyoto Protocol decided to establish an open-ended ad hoc working group (AWG) of Kyoto Protocol Parties to consider further commitments for Annex I Parties for the period beyond 2012, in accordance with Article 3.9 of the Kyoto Protocol (decision 1/CMP.1). Reporting to the COP/MOP at each session, the AWG was to complete its work and have its results adopted by the COP/MOP as early as possible and in time to ensure that there is no gap between the first and second commitment periods. Furthermore, COP 11 in 2005 established an open-ended "Dialogue" open to governments and observer organizations to share experiences and analyse strategic approaches for long-term cooperative action to address climate change. These two processes, together with the COP/MOP sessions, provide the foundation for continuing intergovernmental discussions for the post-2012 policy framework on climate change.

The development of a comprehensive and integrated post-2012 global policy framework is clearly needed. This should be one that reflects both the concerns of

developing countries to place their economies on a sustained and sustainable development path and the global concern to substantially reduce GHG emissions and mitigate and adapt to global warming. It needs to address three stark facts that exist in today's world:

(i) the world is facing a global climate crisis that requires urgent emergency action to make sure that global GHG emissions peak within the next 10 years and then decline drastically over the next three to four decades, if global warming is to be kept at less than 2C by mid-century;

(ii) flowing from the climate crisis, the environmental and carbon emissions space available for developing countries has been drastically and inequitably reduced by the development pathways taken by today's developed countries, to the extent that there simply is not enough global environmental and natural resources, nor the carbon emissions space, available to allow developing countries to develop in the same way, or even in anything approaching the same way, as developed countries did when they were themselves developing. The shrinking of environmental and carbon emissions space as a result of the climate crisis means that global GHG emissions must be drastically cut, with developed countries bearing the major burden and developing countries contributing their share of emissions reductions in a way that will not compromise their development prospects; and

(iii) global economic inequity has widened and continues to widen between the developed and developing countries, aided and promoted by an increasingly complex web of international economic rules and structures (especially in trade, intellectual property, investment and finance) that has increasingly limited the development policy space of developing countries and making it more difficult for them to use economic development policy instruments used by developed countries when they themselves were developing.

II. General Principles for a Development Agenda in Climate Change

Any new climate change regime that fails to address these facts will be environmental, politically, socially, morally, and economically unsustainable and unjustifiable. Global action to stabilize the climate requires full commitment from both developed and developing countries, and the latter will find it difficult to commit if doing so threatens their development prospects – which effectively means that a global climate regime with any promise of success must explicitly embrace the right to development, in particular of developing countries and their peoples. Developed countries must not only lead the way in reducing their emissions deeply and soon (so as to create a bit more environmental and carbon space); they must also work with developing countries and show and implement the political will to help create developmental space for developing countries and support a transformation of their development pathways to ones that are low-carbon emissions and adapted to changing climate conditions.

The principles that should guide this post-2012 framework are already contained in the UNFCCC and in the 1992 Rio Declaration on Environment and Development with its accompanying Plan of Action – Agenda 21. These include:

- the principle of common but differentiated responsibility and respective capabilities to be implemented in a spirit of global cooperation and partnership
- providing special priority to the special situation and needs of developing countries, especially LDCs and the most environmentally vulnerable
- the use of the precautionary approach
- the reflection of the polluters pay principle
- the fulfilment of the right to development in an equitable and sustainable manner
- the establishment of a supportive international economic system that supports the economic growth and sustainable development of all countries, especially developing countries, so as to enable them to better address climate change.
- The need for negotiations to cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors

III. Broad Objectives for the Post-2012 Global Climate Policy Framework Process

In this regard, the Bali meeting must result in agreement on a robust, broad-based, and integrated negotiating mandate that lays out the principles to be reflected, the issues to be negotiated, and the process modalities for the negotiations (the Bali roadmap approach) for the post-2012 framework on climate change. To ensure the reflection of the principles posited above, certain key elements are necessary for more robust and pro-active international cooperation on climate change in any mandate or framework to be agreed upon at COP 13, building on the work done by the AWG and under the Dialogue process, for purposes of establishing the post-2012 global policy framework on climate change. These elements include:

(i) overarching principles to guide the negotiations;
(ii) identification of the issues to be negotiated and agreed upon, including but not limited to:
    a. mitigation measures (including differentiated GHG emissions reductions commitments reflecting development considerations)
    b. adaptation measures (including avoided deforestation, the establishment of an Adaptation Fund, and sustainable economic development policy measures)
    c. technology transfer and cooperation
    d. financing and incentives
    e. emergency climate and disaster risk reduction and response cooperation
    f. institutional cooperation and governance
(iii) the negotiating process and modalities

To avoid a gap between the end of the Kyoto Protocol's first commitment period in 2012 and the entry into force of a new framework, negotiations need to conclude in

2009 to allow enough time for ratification by States. Bali will thus have to set in motion the negotiating agenda for the next two years.

The Bali meeting will have to be founded on a critical assessment of those aspects of the Kyoto Protocol which did not work, namely developed countries not meeting their emissions reduction targets and being unlikely to do so by 2012. This aspect of failure to meet targets must be squarely addressed in a new framework. Developing countries must also realize that pressure to reduce emissions will also increase as their emissions rise, but this pressure can only be addressed on the basis of a framework of of common but differentiated responsibility based on historical data.

UNFCCC Executive Secretary Yvo de Boer has pointed out that "the yardstick to measure the success of this initiative will be whether it delivers on established principles under the UNFCCC, including:

- It would need to be inclusive and global in its reach."
- It would need to be embedded in sustainable development."
- It would need to ensure that industrialised countries continue to take the lead in reducing emissions."
- And it would need to accord equal importance to adaptation and mitigation."[2]

Such yardsticks are important but even more important will be the extent to which the negotiating mandate for the post-2012 climate change policy regime reflects and operationalizes the principle of common but differentiated responsibility and respective capabilities and the right to development of developing countries. Having new and additional compensatory adaptation and climate disaster response and rehabilitation financing be made available would also be important. The policy conditions that promote technology transfers to and innovation in developing countries of climate-friendly technologies also need to be established. In the ultimate analysis, the most important yardstick by which to measure success would be the extent to which the post-2012 framework provides for both environmental space and development policy choice for developing countries. The post-2012 policy framework should not lead to a foreclosure of both environmental space and development policy options for developing countries.

IV. Mitigation

Mitigating climate change and its impacts should continue to form one of the major pillars for global cooperation and global policy on climate change. This is an intergenerational responsibility that today's generations owe to future generations and to those of the present generation who are already being affected by present day impacts. According to the scenario for the lowest stabilization level assessed by the IPCC, a long term goal in line with the latest science would include a peak in emissions in the next 10 - 15 years and a decline of emissions by at least 80% over 2000 levels by 2050. Emissions should be stabilized at less than 400-450 parts per million CO2e in the atmosphere so that global warming would be as far below 2C above pre-industrial levels as possible (even with this target, IPCC projections of

[2] In his address to the European Parliament on 4 October 2007.

climate change impacts beginning from 1C above 1980-1999 global mean temperature are already high in many respects[3]).

In this regard, mitigation policy in the post-2012 context should contain:

- ***Increasing environmental space for development through global GHG emissions reduction targets***[4] – There should be deeper binding emissions reduction commitments for developed countries.[5] Developing countries who deem themselves in a position to do so need to be further engaged -- especially those whose emissions already or will in the near future contribute significantly to atmospheric GHG concentrations -- conditioned on the provision of adequate support from developed countries in terms of both technology and financing for mitigation and adaptation. After their Vienna meeting in August 2007, the Parties to the Kyoto Protocol agreed to work based on a range of emission reduction objectives of Annex I developed country Parties of 25-40% below 1990 levels. However, much more will need to be done. An 80% or more global cut in current GHG emissions levels will be required to have at least an even chance of limiting global warming to below 2C. To achieve this, substantial annual reductions will be required to limit the extent to which atmospheric concentration of GHGs will beyond 400-450ppm carbon dioxide equivalent (CO2e) by 2015 to as low a margin as possible and then progressively and substantially reduce such concentrations to less than 400ppm CO2e within the next 50 years. An arrangement for emissions reductions commitments need to be set up that reflects: (i) the urgent need for action on mitigation – i.e. a medium-term target to make GHG emissions peak by 2015 and a long-term target to reduce them to 80% of current levels by 2050, (ii) the principles of common but differentiated responsibility and respective capabilities and polluters pay, (iii) the establishment of a linked package of mitigation cooperation measures with reductions to be achieved by developing countries who deem themselves to be in a position to do so, and (iv) the appropriate science-based monitoring and evaluation mechanisms to ensure that emissions targets are being met.

[3] See e.g. Yohe, G.W., R.D. Lasco, Q.K. Ahmad, N.W. Arnell, S.J. Cohen, C. Hope, A.C. Janetos and R.T. Perez, 2007: Perspectives on climate change and sustainability. *Climate Change 2007: Impacts, Adaptation and Vulnerability*. *Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 828-829, for a discussion of the impacts.

[4] The negotiations should cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors.

[5] The leadership shown by the European Union (EU) in expressing its intent to go beyond its and its Member States' current Kyoto Protocol commitments and aiming for a reduction of 20% by 2020) and even further to 30% if other countries follow suit) is exemplary. But it and other developed countries should go further in terms of their GHG emissions reductions commitments.

- ***Addressing development implications of GHG emissions targets*** - The establishment of science-based global emissions reduction targets and commitments have to be linked to the agreement of "burden sharing" principles, particularly as between developed and developing countries. The implications for developing countries of proposals on global emissions targets, and on how these should be achieved and monitored, should be more explicitly discussed and addressed on the basis of common but differentiated responsibility and respective capabilities. The growing population and consequent development needs of developing countries need to be taken into account in designing the post-2012 regime.[6] A regime that may require developing countries to cut current per capita GHG emissions (and consequently their energy use) may only result in the foreclosure of the development options for developing countries. This should not be the case. A fairer arrangement vis-à-vis emissions reduction targets needs to be arrived at that would allow developing countries to increase energy use commensurate to their chosen sustainable development pathway. Such arrangement would also need to reflect equity considerations that demand a more equitable burden-sharing approach in which members of the global population, regardless of where they are situated, who emit GHGs more will have to bear a higher share of paying for the costs of mitigation and adaptation.[7]

Development Implications of Global Emissions Targets

An analysis by Martin Khor of the Third World Network (TWN)[1], points out that since developed and developing countries now have approximately 50:50 shares in total global emissions, then a global 50% cut from the emissions of 2000, of which 70% (the average of the 60-80% spread suggested by the EU) would be borne by developed countries, necessarily implies that developing countries will have to commit to shouldering the remaining 30% global emissions cut required to reach the global 50% emissions reductions target. TWN suggests that "if we assume, for simplicity, that developed and developing countries account 50:50 for total emissions, then a global 50% cut with 70% developed-countries cut implies a 30% emission cut for developing countries. If developing countries' population doubles in that period, then the implication is a 65% cut in their emissions per capita. If their population trebles, the implication is a per capita emissions cut of 77%." On a per capita basis, this means that developing countries will have to make proportionately deeper emissions reduction commitments than developed countries, especially when taking into account population growth projections up to 2050 from the UN which indicates that today's 1.2 billion population in developed countries will remain largely the same while the current 5.3 billion people in developing countries will swell to 7.9 billion by 2050 (or a growth of more than 47%[2]).

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[1] See the TWN statement at http://www.climatenetwork.org/climate-change-basics/by-meeting/awg-vienna-august-2007/TWN-Statement

[2] See http://esa.un.org/unpp

- ***Mitigation cooperation*** – Greater global cooperation for climate change mitigation requires more effective policies and mechanisms to enhance: (i) innovation, diffusion and transfers of climate change mitigation-related technology; and (ii) the development of innovative financing; that may be needed by countries to improve their ability to comply with mandatory or

[6] For a discussion of some of the development issues that would be crucial in the post-2012 regime, see e.g. Martin Khor, Development issues crucial for post-2012 climate regime (TWN Briefing Paper 40, September 2007), at www.twnside.org.sg; and Tariq Banuri, Twelve Theses: Sustainable Development Agenda for Climate Change (Stockholm Environment Institute, September 2007).

[7] An example of this approach can be found in Paul Baer, Tom Athanasiou, and Sivan Kartha, The Right to Development in a Climate Constrained World (September 2007), at http://www.ecoequity.org/docs/TheGDRsFramework.pdf. Other suggestions include imposing a global tax on the wealthiest 20% of the global population, regardless of where they are domiciled. See e.g. Tariq Banuri, Twelve Theses: Sustainable Development Agenda for Climate Change (Stockholm Environment Institute, September 2007)

voluntary commitments to reduce GHG emissions, prepare for disasters, and enhance humanitarian assistance. In this regard, the post-2012 framework should provide for policies that facilitate mitigation technology diffusion (e.g. through removal of technology transfer barriers and the provision of financing) and promote the use of appropriate and practical solutions in all countries – especially developing countries - to mitigate climate change.

Taking the considerations above into account, *a possible arrangement could be one where developed countries are required to cut their GHG emissions by at least 95 percent below 2000 levels by 2050. Developing countries who deem themselves to be in a position to do so - especially by those whose emissions already, or will in the near future, contribute significantly to atmospheric GHG concentrations - should also engage by ensuring that, conditioned on the provision of appropriate technology transfer and adequate technical and financial support from developed countries, their voluntary national climate change plans aim for GHG emissions reductions that would also substantially contribute to meeting global targets in ways and levels that are appropriate to their development needs and priorities.*[8] [9] [10] *Least developed countries, and developing countries whose contributions to global GHG emissions were less than 0.1% as of 2000, would not have to undertake any emissions reductions.*

V. Adaptation

Efforts at improving global ability and capacity to adapt to climate change should form another major pillar. The impact of mitigation efforts will only be seen and felt decades from now. This means that short- and medium-term adaptation to climate change for the generations of today and the near future need to be undertaken. Developed countries have a responsibility to support developing countries in their efforts to adapt to climate change. The primary concept to be made operational here is that enabling developing countries to embark on a sustainable development pathway remains the primary and long-term sustainable climate change adaptation mechanism.

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[8] China's National Climate Change Program (released in June 2007), for example, shows how China intends to achieve significant reductions (with quantified targets) in its GHG emissions through a combination of energy conservation and efficiency, shifts to non-GHG emitting energy sources, more efficient resource utilization, strengthened GHG emissions control, improvements in agricultural production techniques, and increasing forest cover.

[9] As part of their national plans and their contribution to emissions reductions, developing countries might wish to consider setting and meeting voluntary sectoral targets (in energy-intensive economic sectors in which they have the capability to regulate, monitor, and enforce emissions reductions) through a voluntary pledge and review process within the UNFCCC framework, supported by binding legal commitments from developed countries to provide adequate and timely technical assistance, technology transfer, and financing support.

[10] A differentiated approach that takes into account the specific development conditions and requirements of individual developing countries, and which promotes the participation of the developed and developing countries that contribute the most to total GHG emissions in a global agreement to reduce GHG emissions would seem to be the most feasible. A one-size-fits all approach of setting fixed emissions targets for developing countries will not work since it would fail to address the development implications of such targets. According to a study by the World Resources Institute (WRI), only 25 developed (with the EU's 25 Member States as of May 2004 counted as one regional entity) and developing countries account for 83% of total GHG emissions in 2000. See Kevin Baument et al., Navigating the Numbers: Greenhouse Gas Data and International Climate Policy (2005), at http://www.wri.org/climate/pubs_description.cfm?pid=4093.

- ***Ensuring that trade, finance, and other economic policies provide development policy space*** – It is becoming increasingly clear that adaptation should be integrated into sustainable national development plans and strategies. This implies that such plans and strategies need to take an integrated approach to, inter alia, trade policy, economic diversification, the development of productive capacity, environmental policy, investment policy, intellectual property policy, etc., to ensure that the overall national development approach is "climate-friendly", poverty alleviating, and improves the ability of countries to adapt to climate change impacts. The post-2012 framework must therefore support the establishment of an international economic system that supports and promotes the sustainable development of developing countries, taking into account their need for flexibility to determine and implement the appropriate development policies needed to develop and, at the same time, adapt to climate change. This means that the post-2012 framework must protect and promote the right to sustainable development of developing countries through policy parameters for the design of economic and environmental policies that are needed to provide: (i) the development policy space for developing countries in the areas of tariff and non-tariff barriers, intellectual property, investment promotion and regulation, regional integration, industrial policy, and finance regulation; [11] and (ii) the environment and carbon space to increase GHG emissions, to the extent that may be required to enable them to increase the standards of living of their peoples to levels commensurate with a decent and dignified way of life.[12]

- ***Environmental and natural resource management*** – Appropriate environmental and natural resource management policies are necessary for improving adaptation prospects. For many developing countries, environmental and natural resources form the natural capital for financing development activities. However, the rapid depletion or degradation of such environmental and natural resources to fuel economic development will have adverse impacts on the country's ability to adapt to climate change. In this

[11] This could require, for example, the inclusion of policy measures in the post-2012 climate policy regime that provides global economic policy-making institutions such as the WTO, the Bretton Woods institutions, the WHO, the WIPO, the UN system, as well as national governments, with quantitative or qualitative policy parameters to ensure that trade, intellectual property, investment, regional integration, development assistance, financial rules or disciplines that may be negotiated in these other institutions, or undertaken on a plurilateral or bilateral level, are crafted to provide for such increased development policy space.

[12] An indicative development threshold of US$9,000 per year per capita income in PPP terms (a "global middle-class" level which is still below the average developed country middle class) has been suggested in a paper on the use of an equity reference framework ("Greenhouse Development Rights") as an approach to developing a new climate change regime published by Christian Aid, Heinrich Boell Foundation, and EcoEquity. See Paul Baer, Tom Athanasiou, and Sivan Kartha, The Right to Development in a Climate Constrained World (September 2007), p. 18, at http://www.ecoequity.org/docs/TheGDRsFramework.pdf. The US$9,000 threshold is just over one-fourth (27%) of the average per capita income in developed countries. The paper notes that in 2005, per capita income in high-income (developed) countries (reflected in GDP in PPP terms) was US$33,100; middle-income developing countries – US$7,300; and low-income developing countries – US$2,500. Only 2.2% of the population in low-income countries and 24% in middle income countries are above the US$9,000 threshold, as compared with 93% of the population in high-income developed countries. See id, at 27 (Table 1).

regard, the post-2012 framework must also take into account and reflect the need for closer linkages between other aspects of the global and domestic environment and climate change. Some of these aspects which are most important to developing countries include:

- **Avoided deforestation and land-use conversion** - The protection of the world's forests can have a significant effect both on reducing greenhouse gas emissions and on preserving biodiversity. Tropical forests contain up to 40% of the world's terrestrial carbon and play a powerful role in mitigating the growing instability of the climate. On the other hand, deforestation due to conversion of forest land to other uses such as agriculture, industry, and residential land contributes up to 20% of global greenhouse gas emissions. Rates of tropical deforestation hence urgently need to be stemmed, and addressing deforestation must be a major component of the post-2012 framework. A more integrated approach needs to be made between the UNFCCC framework post-2012, and the policy frameworks represented by, e.g., the UN Convention on Biological Diversity (CBD), the UN Desertification Convention, the International Tropical Timber Agreement (ITTA), etc., as well as national land use and development policies, to ensure that global forests are protected from deforestation, developing countries are assisted in protecting their remaining forests, and increased rates of forest cover especially in developing countries will be counted as part of their individual national contributions to the global climate change mitigation and adaptation effort. A financing mechanism must be provided through which developed countries would, in addition to their GHG emission reductions commitments, also commit to provide technical and financial assistance to support the efforts of developing countries to prevent the deforestation of their tropical forests and to expand the rate of tropical reforestation in ways that also protect and promote tropical biodiversity and the rights and economic livelihood of local indigenous communities. GHG emissions reductions achieved through reforestation or avoided deforestation in tropical developing countries may be credited in full to the tropical developing country in which such reforestation or avoided deforestation takes place. Such credits then be considered as tradable carbon credits in the international carbon trade market, provided that appropriate safeguards are put in place to prevent such credits from being purchased by countries in lieu of effecting domestic changes needed to meet their GHG emissions reductions targets. Such safeguards could include "discounting" of such credits or putting limits on the amount of carbon credit that would accrue to the purchaser if the carbon credit arising for avoided deforestation is purchased by developed countries. If the purchaser is a developing country, the full carbon credit could be credited although secondary sales of such credit, if done in favour of a developed country, would still be subject to the credit safeguards discussed above.

- ***Energy use, access and security*** – Energy use is at the core of the climate change and development policy debate, not only in terms of the role that the

use of fossil fuels have played in GHG emissions but also in terms of the role that continued access to energy resources will play in improving the development prospects of developing countries and thereby enhancing their capacity to adapt to climate change. This means that the post-2012 policy framework should have provisions to: promote the security of energy access for developing countries; promote and facilitate the innovation, diffusion and transfer of clean and renewable energy technologies to developing countries; promote and facilitate the use of energy efficiency in all aspects of production and consumption; and provide for increased levels of innovative financing for developing countries to be able to develop, acquire, or innovate on energy sources and technologies that are appropriate to their circumstances and development objectives. Additionally, a compensation and economic diversification support mechanism to support the transition from fossil fuel export-dependency by fossil fuel exporters will need to be established as a way of implementing Art. 4(8)(h) and Art. 4(10) of the UNFCCC.

- ***Science-based monitoring, research and evaluation of adaptation policies*** – For climate adaptation, projections of future climate are required at regional, national and local scales where confidence in current model outputs is still low. Nevertheless, decisions will have to be taken under conditions of uncertainty by adopting precautionary principles. Adaptive management approaches will not only require a coherent policy framework from governments, but also high quality climate information and tools for risk management through better and systematic monitoring, assessments and predictions at the regional, national and even local scales. Concerted, focused and science based adaptation measures are required. Integration of climate information into decision making would foster effective climate risk management strategies. The broader use of climate information and key services as tools in the development and implementation of effective adaptation strategies should be promoted. Also, there can be more extensive use of climate observations and services in policy formulation and operational decision-making in climate sensitive sectors such as water resources, agriculture, energy, urban planning, tourism, health, and disaster risk reduction. While there have been major advances in climate change projections, the level of uncertainty may still be too high for decision making in certain sectors. Further acceleration of improvements in models will be required if the IPCC is to use all these data, models output and other relevant information to summarize current knowledge and advise policy makers, for adaptation planning. With adaptation in mind, it is becoming just as important to ensure that denser regional- and national-scale networks function effectively in order to provide the greater detail needed for understanding regional and local effects of climate change and for adaptation planning. Governments should also be able to ensure public and policy-maker access to scientifically credible and adequate information on climate. Such information on climate change projections forms the basis for adaptation plans. There is a need to continue to support access to, and facilitate the use of, projected climate change estimates, including the understanding of climate change impacts on climate variability and extremes; the critical limits of climate change with regard to key vulnerabilities (such as sea-level, water resources management, food and health security, and the protection of ecosystems and

infrastructures). Assistance is also needed in the identification of remaining gaps and deficiencies in climate observations and services. In this regard, partnerships across disciplines and institutions at national and international levels are essential. The post-2012 framework must therefore also promote science-based adaptation policymaking.

VI. Technology Transfer

Technology is a major element in addressing climate change in terms of the potential for existing and new technologies to play key roles in global and domestic climate change monitoring, mitigation, and adaptation strategies and actions. This means that research on and the development, deployment, diffusion, transfer, and innovation of climate-friendly technologies should be given high priority, especially with respect to transfers to and among developing countries. The post-2012 climate policy regime should ensure that the best appropriate technologies for climate change monitoring, mitigation and adaptation be made available to developing countries under conditions that are cost-effective or commercially preferential and with the corresponding policy, technical assistance, and financial support package needed to make it easy to developing countries to undertake their own technology research and development and to innovate and adapt transferred technologies to make them more appropriate to their development and climate change needs and priorities.

- ***Climate-friendly technologies*** -- In this context, there needs to be a long term policy framework after 2012 that would to give clear incentives to efforts aimed at the research, development, deployment and transfer of climate-friendly technologies, including the use of and innovation and adaptation by developing countries of such technologies. In particular, it should also cover energy efficiency, renewable energy and carbon capture and storage. Technology roadmaps should have clear and affordable innovation targets that bring new technologies to markets, especially in developing countries, where they will be most appreciated and considered useful. International technology cooperation and making existing and new climate-friendly technologies available to end-users (whether commercially or through non-commercial transfer arrangements), especially in developing countries, will be among the major building blocks for a development-oriented post-2012 framework and will be a large part of the global solution. Commercial transfers of climate-friendly technologies to developing countries should be under preferential rather than full market-based conditions. Among the climate-friendly technologies whose transfer from countries that have them to countries that do not should be facilitated include[13]:

    - **Technologies needed for observation and monitoring of climate change** -- e.g. inter alia; technologies for atmospheric observation; marine observation; terrestrial eco-observation; satellite technology on meteorological; marine and terrestrial resources; and climate system

[13] The technologies listed here are merely indicative, and other technologies might be required or be appropriate depending on the development context and circumstances of a particular developing country. Many of these technologies were identified in the 2007 National Climate Change Program of China.

simulation and calculation; etc. These should also include technologies for the manufacture of advanced meteorological and ecosystem observation equipment; high-resolution and high-precision satellite technology; technology for satellite data acquisition and remote-sensing information collection and review; data exchange; and research including high-performance climate change simulation techniques;

- **Technologies needed for mitigation of climate change** – e.g., inter alia; technologies for reducing GHG emissions such as efficient energy production and utilization technology; environmental protection and resource comprehensive utilization technology; high energy efficiency transportation technology; new materials technology; new-style building material technology; high-efficiency and low-pollution power generation technology; small to large-scale hydropower generation technology; clean carbon technology; renewable energy technology; building energy conservation technology; clean fuel vehicle technology; hybrid vehicle technology; urban rail-based transportation technology; fuel cell and hydrogen cell technology; oxygen-rich coal-spray blast furnace technology; new paving materials technology; new-type wall-body materials; low-GHG emission agriculture and animal husbandry technology.

- **Technologies needed for adaptation to climate change** -- e.g., inter alia; high-efficiency water-saving agro-technologies such as spray and drip irrigation; water efficiency and reuse technology for industrial water; treatment technology of industrial and household wastewater; household water-saving technology; high-efficiency flood-controlling technology; agro-biological technology; agricultural and animal breeding technology; production technology for new-type fertilizers; disease and pest control technology for cropland, forest, and grassland; cultivation technology of fast-growing high-yield forest and high-efficiency firewood forest; technology for recovery and reconstruction of wetland, peatland, mangrove and coral reef ecosystems; technology for observation and pre-warning of flood, drought, sea level rise, agricultural disasters, desertification, glacier collapse, etc.

- ***Special innovation and knowledge access regimes for climate-friendly technologies*** -- Transfers of climate-friendly technologies should be subject to special and pragmatic flexible innovation and knowledge access regimes (which should also cover flexible intellectual property rights) to allow and encourage developing countries to learn from, innovate, refine, and invest in specific technologies and sectors to make them more appropriate to developing country conditions.

- ***Sectoral approaches to technology transfers and corollary financing and investment***[14] – Current discussions towards a post-Kyoto climate regime are arranged around broad topics including mitigation and adaptation, technology

[14] This is based on a draft note entitled "An Economic Sector Approach to Climate Negotiations" by Matthew Stilwell, Institute for Governance and Sustainable Development (October 2007).

transfer and financial support. Within the context of the Kyoto Protocol, more specific discussions have taken place around specific mechanisms, such as emissions trading, joint implementation and the CDM, and on specific topics such as land-use change in agriculture and forestry, or national adaptation programs of action. An "economic sector" approach could be a key element of the negotiations towards a post-Kyoto climate regime. It suggests that a focus on economic sectors – especially on energy, transportation, industry, building and agriculture[15] which are sectors or which have sub-sectors that may be more conducive or amenable to international cooperation in terms of common efficiency benchmarks or CO2 intensity reductions[16] – could complement existing discussions for a global comprehensive agreement (covering most sectors and GHGs) and provide a useful vehicle for promoting international cooperation to tackle climate change and promote development. A focus on economic sectors aligns with the mandates of these existing sectoral ministries, allowing a coordinated approach to policy-making that draws on existing mechanisms for inter-ministerial coordination under the guidance of coordination or planning agencies within the executive branch of government. An economic sector approach, especially with respect to technology transfers, financing and investment in relation to mitigation and adaptation, could allow for tailored sector-specific solutions, allow for a better integration of mitigation and adaptation efforts on a sector level, encourage dialogue, engage the private sector, improve the flow of financial assistance, support technology transfer and implementation, address competitiveness concerns, and engage sectoral agencies. Sectoral approaches, especially in sectors that stand out such as energy and transport, within the context of a broader and more comprehensive agreement that covers most sectors and GHGs would be critical for the medium term. Many of the measures and policies that Parties to the UNFCCC and Kyoto Protocol have adopted aim to add and integrate climate change elements into existing sectoral policy and institutional frameworks. This needs to be expanded and can contribute to engaging industrial sectors in a harmonised way in order to bring about the necessary market transformation.

- ***Cooperation in climate-related science*** – The establishment of the IPCC by the WMO and UNEP in 1988 was a milestone in linking climate science with climate policy. This relationship between climate science and climate policy will be crucial to the success of the post-2012 framework. In this regard, the environmental sciences – in particular climate and meteorological science and ecosystem-related sciences – should form the scientific foundation for policy instruments that may be designed to address climate change and its related impacts. This will require the inclusion in the post-2012 framework of strong institutional and technical cooperation measures within countries and among

[15] Global GHG emissions come from the following: production of electricity and heat – 24.6%; transportation – 13.5% (of which: motor vehicles – 9.9%, aviation – 1.6%); industry – 21.1% (of which: chemicals – 4.8%, cement – 3.8%, steel – 3.2%, aluminium – 0.8%); buildings – 15.4%; agriculture – 14.9%; land-use change and forestry (LUCF) – 18.2%; and waste – 3.6%. See Baument et al, at 57.

[16] See Baument et al, at pp. 53-93, for a discussion of a possible sectoral approach to GHG emissions reductions and international cooperation.

countries between policymakers and their environmental science establishments (e.g. academe, meteorological services, etc.)

VII. Financing, Incentives and Adaptation Cooperation

The post-2012 framework must give developing countries the incentives to create a low carbon path of economic development that allows them to continue tackling poverty while reducing greenhouse gas emissions in the process. There are existing mechanisms in the UNFCCC framework that very partially provide for this, such as joint implementation and the use of the Clean Development Mechanism (CDM). However, much more is needed. A recent UNFCCC estimate indicates that for GHG emissions to return to current levels by 2030, between US$200-210 billion will be required by 2030 while for adaptation in developing countries, between US$28-67 billion would be required.[17] Some ways in which the financing needed for climate change mitigation and adaptation could be provided include:

- ***Carbon market mechanisms and private sector involvement*** – The role of the private sector in providing financing and investment flows into climate-friendly and climate-proof commercial activities will be an important component of the post-2012 framework. Ensuring that such role is lived up to will, however, require State regulation and oversight, especially in terms of setting the parameters of market-based mechanisms that may serve to channel private sector activity into climate-desirable pathways. Market-based mechanisms developed by governments may be needed, such as developing a variety of tools to address climate change including emissions trading, standards, and voluntary actions. However, care must be taken to ensure that standards-setting is done transparently and with the full participation of developing countries. Voluntary actions by private sector actors should be supplemented by a policy framework that would allow governments to step in and put in place mandatory limitations should voluntary actions not result in the desired outcome. Governmental action may also be required to ensure that market-based emissions trading do not result in a "permit to pollute" situation and the shifting of the GHG emissions reduction burden from developed to developing countries. A flexible and expanded carbon market under the existing Clean Development Mechanism (CDM) of the Kyoto Protocol may help deliver cost-effective results and help to make economic growth in developing countries climate-friendly, provided that appropriate regulatory changes are made to ensure that: (i) the financial benefits of CDM-related activities are spread equitably among developing countries, (ii) the issue of the CDM providing perverse incentives to deforest and produce ozone-depleting substances are addressed; (iii) concerns relating to spurious credits and unsustainable projects are addressed; and (iv) the overall burden of reducing GHG emissions is not shifted from developed to developing countries. Other carbon pricing signals, such as taxes, may also help foster action by the private sector. Additionally, market-based incentives may need to be established for

[17] See UNFCCC Secretariat, Report on the analysis of existing and potential investment and financial flows relevant to the development of an effective and appropriate international response to climate change (Dialogue working paper 8, 8 August 2007).

major GHG emitter developing countries to participate in the Kyoto Protocol's emissions trading system by encouraging them to voluntarily establish sectoral or other quantified action commitments for higher levels of GHG emission limitations and/or reductions. Developing countries should be involved in the development and implementation of these mechanisms. Access to the global carbon trading system under the Kyoto Protocol should be made available to any developing country voluntarily setting national GHG emissions reduction targets.[18] Any CDM successor mechanism should also avoid creating incentives against further strengthening national regulatory requirements for GHG emissions reductions.

- ***Technical assistance and capacity-building (TACB)*** – The provision of TACB – e.g. transfer of technical skills and knowledge – from developed to developing countries, and from developing countries in a position to do so to other developing countries, to support developing country actions to reduce their GHG emissions and to adapt to climate change should form an integral part of the post-2012 framework. Such TACB should be linked to all aspects of climate change work undertaken pursuant to the post-2012 policy framework.

- ***Compensatory adaptation financing*** – Developing countries, especially SIDS and LDCs, will require significant amounts of extra financing support in order to enable them to put in place effective and appropriate adaptation measures. Developing countries, especially LDCs and SIDS, will need assistance with large-scale adaptation, while recognizing that in view of the diversity of circumstances, different developing countries may have differing adaptation choices. They will be the most affected by climate change impacts. A 2007 study by Oxfam International[19] estimates that at least approximately US$50 billion will be needed annually if current GHG emissions rates are stabilized to support adaptation in developing countries. More than that will be required if global GHG emissions are not cut (some studies have suggested that at least US$28-67 billion per year may in fact be required while others have suggested that the financial requirement might be in the trillions of dollars)[20]. Financing for developing country adaptation measures to climate change should be provided by developed countries in addition to their existing official

[18] The post-2012 framework should, however, incorporate a better system to ensure that the global carbon trade market is appropriately regulated and overseen to ensure that carbon trading does not continue to be a way through which developed countries can buy their way out of effecting effective domestic GHG emissions reductions. Appropriate regulation of the global carbon trade market through governmental oversight mechanisms will also be needed to ensure that its potential to produce real emissions reductions is achieved. See e.g. Baer et al, at 44.

[19] See Oxfam International, Adapting to Climate Change: What's Needed in Poor Countries and Who Should Pay (2007), at http://www.oxfam.org/en/policy/briefingpapers/bp104_climate_change_0705.

[20] The amounts required for adaptation financing, while large, are definitely within the realm of being realistically provided assuming the political will exists to do so. Governments are already spending at least US$1.2 trillion in 2006 on military expenditures, and they should be just as willing to spend just as much or even more to address a significantly greater global and national threat – climate change. Expenditures for adaptation financing on the scale suggested has been calculated as implying only a delay of a few months in achieving increased income gains. See e.g. Baer et al, at 34. See also UNFCCC Secretariat, Report on the analysis of existing and potential investment and financial flows relevant to the development of an effective and appropriate international response to climate change (Dialogue working paper 8, 8 August 2007).

development assistance (ODA) commitments of 0.7% of GDP as compensation for the historical responsibility of developed countries in being the main drivers of current global warming trends. Developed countries should increase the amounts of compensatory adaptation financing that they provide to developing countries, both in the context of filling up the voluntary multilateral adaptation funds under the UNFCCC and on a bilateral basis (to date, only US$230 million has been committed to the UNFCCC's adaptation funds, of which only US$48 million has been delivered to support LDC adaptation). Hence, effective and robust financial mechanisms must be explored, including innovative approaches for climate- and climate change-related insurance that would cover any costs incurred by the most vulnerable. In order to do this, there needs to be a source of reliable funding that can support adaptation measures to be undertaken by developing countries and ideally is linked to the costs of adaptation and damages for the most vulnerable countries and should prioritise the most vulnerable communities and those with the least capacity to cope with climate change impacts. The Adaptation Fund already set up (financed from the proceeds of the Kyoto Protocol Clean Development Mechanism) needs to be enhanced and expanded to provide more resources that developing countries can tap to support their adaptation efforts. In this regard, under the post-2012 framework, developed countries, being primarily responsible for GHG emissions and being financially capable of providing financial assistance, should do more to shoulder the costs of adaptation, especially in developing countries. However, any supportive financing for adaptation to be provided to developing countries should be in addition to, and not at the expense of, existing development aid. In fact, developed countries need to do more to provide more development support, not only in terms of ODA but also in terms of other resource-freeing initiatives such as debt relief and cancellation. Finally, the UNFCCC Adaptation Fund should be operated under the oversight and direct supervision of the UNFCCC Conference of the Parties. Since adaptation is at its core a development issue that, to be addressed effectively, will involve policy choices made by governments and other stakeholders, financing adaptation must be done through the institutional mechanism of the UNFCCC's intergovernmental mechanism which allows for the participation of both governments and civil society.

- ***Sectoral funding mechanisms***. The experience of the Montreal Protocol suggests that funds which are well focused on specific sectors or industries (in this case, the Multilateral Fund) have a greater chance of significant financial contributions from developed countries than do broader or more generally funds. Where funds are focused on specific sectors or industries, then industry and other economic interests in developed countries have a stronger incentive to encourage their governments to provide funding. Funding mechanisms tailored to supporting development-oriented climate mitigation and adaptation activities could be organized on a sectoral basis in order to support activities identified in national plans, drawing on both funding from development cooperation ministries and sectoral ministries (e.g. agriculture, construction, forestry) with an interest in enhancing bilateral and multilateral cooperation on climate and development-related issues arising in their respective sectors.

VIII. Cooperation on Climate Disaster Preparedness, Response and Rehabilitation

Climate change-related extreme weather events – ranging from more severe storms, more prolonged and widespread drought, shortened growing seasons, among others – are now commonplace. They will require a coordinated international response with adequate funding as part of the global post-2012 framework for climate change. Developing countries will require massive support from their developed country partners and the international humanitarian assistance community in order for them to be able to respond effectively to such extreme weather events.

- ***Disaster preparedness*** – International policies and mechanisms should be put in place as part of the overall post-2012 climate change policy framework to assist all countries, especially developing countries, increase the level of disaster preparedness in recognition of the heightened probabilities of higher climate-related disaster levels worldwide. It is important to take into account the Hyogo Declaration and the Hyogo Framework for Action adopted at the 2005 Second World Conference on Disaster Reduction held in Hyogo, Kobe, Japan.

- ***Humanitarian assistance*** – Humanitarian assistance efforts and institutions should be able to respond to climate change-related causes as part of the post-2012 framework. In this regard, greater roles could be played by existing humanitarian assistance organizations in helping developing countries establish better mechanisms for the absorption and deployment of humanitarian assistance in response to climate change-related events.

- ***Climate Disaster Preparedness, Emergency Response, and Rehabilitation Fund*** – Funding for disaster preparedness, the extension of disaster relief and humanitarian assistance, and post-disaster rehabilitation arising from climate change-related disasters and emergencies should be secured, adequately funded, and incorporated as an integral component of the post-2012 framework. The Climate Disaster Preparedness, Emergency Response, and Rehabilitation Fund itself, like the Adaptation Fund, should be managed under the oversight of the UNFCCC with the involvement of developing countries and humanitarian and disaster relief agencies (including civil society organizations).

IX. Institutional and Policy Coherence, Cooperation, and Governance

Institutional and policy coherence and cooperation on development and climate change issues at the national, regional, and international levels will be the most crucial and important aspect of the post-2012 framework insofar as its implementation is concerned. Absent such coherence, coordination and cooperation, global action on the development and climate change challenges will become characterized by a series of disjointed responses that is less than the sum of its parts, rather than becoming a concerted global effort in which each contribution has a positive synergistic effect with other contributions.

Primacy of the United Nations process

The post-2012 policy framework should present a clear vision of the institutional structures through which the global community will address climate change. This will mean that the issue of climate change, and the policies and actions that need to be taken to address it, should be embedded and integrated into the work of the international community and all of its institutions, not only within the UN system but also in institutions that play a role in fostering development such as the World Bank, the International Monetary Fund (IMF), the World Trade Organization (WTO), the Organization for Economic Cooperation and Development (OECD), the South Centre, and regional organizations.

As the sole universal membership organization, the UN system, spearheaded by the UN's climate change-related environmental agencies and organizations such as the UNFCCC and the secretariats of other multilateral environmental agreements (MEAs), the World Meteorological Organization (WMO), and the UN Environment Programme (UNEP), should be at the heart of global action on climate change.

This means strengthening the role of the UN in international environmental and economic governance, and bolstering its ability to promote coherence in social, economic and environmental policymaking to address climate change impacts and adaptation requirements.

Institutional and policy coherence and coordination for mitigation, adaptation, and development

Effective global action on the twin challenges of development and climate change will require that strong policy and institutional coordination and coherence mechanisms be integrated into the new post-2012 framework on climate change. In this respect, the UN's environmental agencies, including UNEP and the UNFCCC, and their activities need to be coordinated more effectively with those of the UN's development arms – such as the UN Development Programme (UNDP), the UN Department for Economic and Social Affairs (UNDESA), the UN Conference on Trade and Development (UNCTAD) and the UN regional economic commissions – as well as with other international policymaking institutions such as the WTO and the Bretton Woods institutions. The objective of such coordination of activities and actions should be to: (i) increase the development policy and environmental space for developing countries; and (ii) ensure that international economic and environmental policymaking is coherent and mutually supportive and complementary.

Greater engagement with other development actors such as developing country institutions, regional integration mechanisms, and civil society also need to be created.

Finally, the post-2012 framework will also need to be linked to other existing multilateral environmental agreements. In this context, the following considerations would be useful:

- **Strengthening mitigation under other international agreements** including under the Montreal Protocol by ensuring the recovery, reuse, or destruction of the growing banks of ozone-depleting substances (ODS) such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) in old products and equipment that will otherwise leak out at product end-of-life. The use of ODS as feedstocks -- not now regulated at all -- needs to be brought under the regulatory system, along with process agents. Exemptions also must be tightened whenever possible, and compliance must be strengthened. In addition, there may be other GHGs that should be included under the Montreal Protocol, starting with hydrofluorocarbons (HFCs), now under the Kyoto Protocol, which are a substitute for CFCs and HCFCs. If they were under the Montreal Protocol, they would be subject to a phase-out schedule and financial assistance, which would signal the market to innovate further to develop environmentally superior substitutes.

- **Ocean management and protection** – The oceans are crucial to the world's ability to adapt to climate change. They hold 98.5% of the carbon in the atmosphere-ocean inventory and therefore play a vital role in the natural regulation of atmospheric CO2 levels. Oceans are natural CO2 sinks, and represent the largest active carbon sink on Earth. At the present time, approximately 1/3 of anthropogenic emissions are estimated to be entering the oceans. The ocean can hold enormous quantities of CO2 because unlike most atmospheric gases it reacts with water to form carbonate and bicarbonate greatly enhancing its solubility. The oceans' ability to absorb CO2 helps reduce overall GHG levels in the atmosphere than they would otherwise be. But increased GHG emissions also affect the oceans by increasing ocean temperatures and ocean acidification levels, both of which impacts on the ability of the oceans to dissolve and store CO2. Also, since most of the global human population live close to the sea, changes in sea levels associated with ocean warming due to global warming will have massive adverse impacts on economic productivity, human survival and territorial integrity for many developing countries. The post-2012 framework hence needs to include policy integration mechanisms that will ensure a more coherent and integrated approach to existing ocean management and protection policy frameworks such as those in the UN Convention on the Law of the Sea (UNCLOS) and other ocean-related treaties.

- **Wetlands management and protection** – Global wetlands play a crucial role in climate change adaptation. Mangrove forests, for example, can shelter vulnerable coastlines from ocean surges, while peatlands are efficient and effective carbon sequestration mechanisms. The post-2012 framework must also, therefore, take into account and integrate existing work such as in the Ramsar Convention.

Developed country responsibility and commitment

Developed countries should show greater political will and commitment to play the leading role in mitigation (through acceptance of substantial mandatory cuts in GHG emissions to at least or more than 80% below 2000 levels) and in supporting global

adaptation (through domestic adaptation, technology transfers to developing countries, the provision of financing to developing countries for compensatory adaptation and for disaster response and rehabilitation). International cooperation on climate change will require a spirit of mutual partnership and acceptance of responsibility and the obligations that go with such responsibility, based on the principle of common but differentiated responsibility and respective capabilities.

Involvement of civil society

The involvement of non-governmental organizations, people's organizations, and grassroots communities (including those of indigenous peoples) working in the areas of development, environment, humanitarian assistance, health, etc. should be actively sought and encouraged.

Supporting developing country participation and South-South cooperation

Finally, the post-2012 framework should contain a clear policy structure that promotes developing country participation and South-South cooperation and action on climate change. Developing countries will play an increasingly important role in addressing climate change. Their domestic development, mitigation, adaptation, disaster response and rehabilitation experiences may provide lessons that can help other developing countries improve their own climate change-related actions. South-South flows of climate change-related financing and technology will also be important, especially in the context of increased South-South regional and cross-regional economic integration and cooperation and ensuring that climate-friendly technologies are appropriate to the development and environmental context of developing countries. Their development objectives, and how they act to meet these objectives, will have a synergistic relationship with the rate of global warming and how the global community works together to reduce and adapt to climate changes.

Annex 1: Designing the Bali Mandate and Roadmap for the Post-2012 Global Policy Regime on Climate Change

From the preceding discussion, it is clear that the Bali Mandate and Roadmap to 2012 must necessarily be a comprehensive global agreement, containing an identification of the key principles to be reflected; broad coverage of most GHG emissions-relevant sectors, gases, and activities; the subjects to be negotiated on; and the negotiating modalities to be used in coming up with the final agreement.

Recommendations on structure and process

The Bali Mandate and Roadmap could be structured and its negotiating modalities designed as follows:

Chapeau – declaration of the launch of negotiations. The chapeau should clearly indicate the reasons for launching the negotiations as providing the context for the negotiations to be undertaken.

Declaration of Principles – this section should clearly identify the principles that need to be made operational through the negotiated outcome. These would include:

- The need for urgent global action to address climate change as a global common and global public good
- The principle of common but differentiated responsibility and respective capabilities to be implemented in a spirit of global cooperation and partnership, in which developed countries take the lead in reducing GHG emissions and in supporting mitigation, adaptation, technology transfer, and disaster response measures in developing countries, while developing countries are afforded increased environmental space and development policy options to improve their development and adaptative capacity
- The fulfilment of the right to development in an equitable and sustainable manner
- The establishment of a supportive international economic system that supports the economic growth and sustainable development of all countries, especially developing countries, so as to enable them to better address climate change.
- Providing special priority to the special situation and needs of developing countries, especially LDCs and the most environmentally vulnerable
- The use of the precautionary principle
- The reflection of the polluters pay principle
- The need for negotiations to cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors

General Objectives – this should clearly identify the qualitative objectives to be met by the negotiations – e.g. limiting global warming to as far below 2C from pre-industrial levels as possible by 2050; promoting the right to development of developing countries; ensuring adequate technology transfer and financial flows to developing countries for mitigation and adaptation, among others.

Guidelines Governing the Negotiations – this section should clearly state the process to be used in the negotiations – e.g. that the negotiations be conducted in a fully inclusive, transparent and participatory manner (with the provision of adequate support and capacity-building to developing countries to enable them to participate fully and effectively in the negotiations); the concept of a linked approach to commitments under which developed countries' commitments to drastically reduce GHG emissions and provide technology and financing for mitigation and adaptation to developing countries would trigger the engagement by the latter to contribute effectively in a manner commensurate to their development needs and priorities to meeting the global emissions reduction target; putting the sustainable development of developing countries at the heart of the negotiations by seeking operational mechanisms for reflecting the principles in the Declaration of Principles (such as ensuring that developed countries will not seek from nor will developing countries be required to make commitments which are not consistent with developing countries' development needs); special attention to be given to the unique situation of LDCs and SIDS in the context of climate change mitigation and adaptation

Subjects for Negotiation – this section would lay out broadly the subjects to be negotiated upon, including their broad parameters and the negotiating objective to be attained for each negotiating subject. These subjects should include:

a. the principles to be reflected and made operational in the post-2012 regime
b. mitigation measures (including differentiated GHG emissions reductions commitments reflecting development considerations)
c. adaptation measures (including avoided deforestation, the establishment of an Adaptation Fund and a Climate Disaster Preparedness, Emergency Response, and Rehabilitation Fund, and sustainable economic development policy measures)
d. technology transfer and cooperation
e. financing and incentives
f. climate disaster preparedness, response, and rehabilitation cooperation
g. institutional cooperation and governance

If negotiations are to cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors, Parties may wish to consider organizing an aspect of the negotiation on a sectoral basis (i.e. in sectoral working groups or committees) to allow integrated discussions of the adaptation, mitigation, technology and financial requirements for addressing climate change in the context of each economic sector, with input from relevant sectoral ministries, industries, non-governmental organizations and international organizations, and with a strong "bottom-up" focus on the development needs and opportunities in each sector. A preliminary set of sectors for consideration by

Parties might include: power, industry, transportation, building/infrastructure, agriculture/waste and forests.

Process and Organization of the Negotiations – this section should lay down basic principles of inclusive and transparent participation; provisions and commitments to support enhanced and effective developing country participation in the course of the negotiations; the institutional mechanism (e.g. setting up a Negotiations Committee with its terms of reference) in the context of the UNFCCC process and mechanisms; and the expected general timeline for the negotiations (e.g. from 2008 to 2009)